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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,331	08/27/2003	Wolfgang Scheel	033033-011	5349
21839	7590	08/07/2006	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC			GOFF II, JOHN L	
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ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

1733

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,331

Applicant(s)

SCHEEL ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/173,625.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 5/19/06.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Double Patenting

3. Applicant is advised that should claim 23 be found allowable, claim 25 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Objections

4. Claims 15, 17, 19, 22, 24, 27, 28, 31, 33, 35, 39, 40, 42, and 43 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 15, 17, 19, 22, 24, 27, 28, 31, 33, 35, 39, 40, 42, and 43 require “wherein said thin glass foil is perforated, rendered porous, structured for optical applications, imprinted, physically coated, chemically coated, processed in a roll-to-roll process and/or thermally moulded”. Claim 12, the independent claim, was amended to require “wherein said thin glass foil is processed in a roll-to-

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roll process and/or thermally moulded”. Thus, as claims 15, 17, 19, 22, 24, 27, 28, 31, 33, 35, 39, 40, 42, and 43 may only require “wherein said thin glass foil is processed in a roll-to-roll process and/or thermally moulded” the claims fail to further limit claim 12. It is suggested applicants delete “processed in a roll-to-roll process and/or thermally moulded” from the claims to overcome the rejection.

Claim Rejections - 35 USC § 102

5. Claims 12-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Cloots et al. (U.S. Patent 6,197,418).

Cloots et al. disclose a method of manufacturing a multilayer pc board comprising providing a thin flexible borosilicate glass foil layer (a layer having high strength, high dimensional stability, and high thermal stability with a thickness of 10 to 500 micrometers), applying by physically coating a resin layer on at least one surface of the glass layer, joining another layer (e.g. thermoplastic, thermosetting, metal, etc.) to the glass layer through the resin layer by pressing in heated rollers to form a multilayer having a glass layer acting as an inside or outside reinforcing layer, and forming the multi-layer into the final product, e.g. a multilayer pc board, in a roll-to-roll process (Column 3, lines 7-60 and Column 4, lines 8-11 and Column 5, lines 55-58 and Column 9, lines 7-10).

Regarding the limitations in the preamble requiring “for the assembly of electronic devices” and “the pc board comprising at least one layer whose thermal expansion properties correspond approximately to the thermal expansion properties of the electronic devices”, it is noted these limitations are statements to the intended use of the multilayer pc board. The claims

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do not require assembling electronic devices on the multilayer pc boards such that the intended use limitations do not require any structural difference between the claimed invention and Cloots et al. and as the multilayer pc board formed by the process of Cloots et al. is capable of undergoing the claimed intended use the limitations are met (See MPEP 2111.02).

Regarding the limitation in the preamble requiring “the pc board comprising at least one layer whose thermal expansion properties... .. determine essentially the thermal expansion properties of the multi-layer pc board”, Cloots et al. teach the glass layer is included in the board for its high dimensional and thermal stability compared to other layers of the board such that the limitation is met (Column 1, lines 19-28 and Column 2, lines 53-60).

Claim Rejections - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 12-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09270573 (See the machine translation) in view of either one of Cloots et al. or Verlinden et al. (U.S. Patent 6,287,674) and optionally Schmidt et al. (U.S. Patent 5,436,062).

JP 09270573 discloses a method of manufacturing a translucent multilayer pc board comprising providing a transparent glass layer (i.e. structured for optical applications), applying another layer (e.g. metal) with a resin layer thereon to the glass layer (i.e. physically coating the glass layer with resin), and joining the layer to the glass layer through the resin layer by pressing in heated rollers to form the multi-layer pc board having a glass layer acting as an inside or outside reinforcing layer (Figures 1-3 and Paragraphs 9 and 10). JP 09270573 does not specifically disclose using borosilicate glass as the glass layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the glass layer taught by JP 09270573 a thin borosilicate glass layer having a thickness of for example 500 micrometers as this was a flexible high strength glass layer used in the same art as shown for example by either one of Cloots et al. or Verlinden et al.

Regarding the limitations in the preamble requiring “for the assembly of electronic devices” and “the pc board comprising at least one layer whose thermal expansion properties correspond approximately to the thermal expansion properties of the electronic devices”, it is noted these limitations are statements to the intended use of the multilayer pc board. The claims do not require assembling electronic devices on the multilayer pc boards such that the intended use limitations do not require any structural difference between the claimed invention and JP 09270573 as modified by Cloots et al. or Verlinden et al. and as the multilayer pc board formed

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by the process JP 09270573 as modified by Cloots et al. or Verlinden et al. is capable of undergoing the claimed intended use the limitations are met (See MPEP 2111.02).

Regarding the limitation in the preamble requiring “the pc board comprising at least one layer whose thermal expansion properties... .. determine essentially the thermal expansion properties of the multi-layer pc board”, JP 09270573 as modified by Cloots et al. or Verlinden et al. teach the glass layer is included in the board for its high dimensional and thermal stability compared to other layers of the board such that the limitation is met.

Regarding the limitation “wherein said thin glass foil is processed in a roll-to-roll process and/or thermally moulded”, JP 09270573 clearly show in Figure 2 the glass layer (1) supported by a plurality of rolls (12) such that the glass layer is processed in a roll-to-roll process and the limitation is met. In the event applicants show a roll-to-roll process requires more than processing with a plurality of rolls the following rejection applies. As noted above, Cloots et al. disclose the glass foil is processed into a multilayer pc board in a roll-to-roll process. Schmidt et al. is further cited as evidence of forming a multilayer pc board wherein the layers of the board are processed in a roll-to-roll process (Figure 10 and Column 14, lines 36-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the multilayer pc board taught by JP 09270573 as modified by Cloots et al. and Verlinden et al. in a roll-to-roll process as shown by Cloots et al. and optionally Schmidt et al. as a simple means to continuously form multilayer pc boards.

Cloots et al. is described above in full detail. Verlinden et al. disclose a method of manufacturing a multilayer board for use in a portable computer comprising providing a thin flexible borosilicate glass layer (a layer having high strength, high dimensional stability, and

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high thermal stability with a thickness of 10 to 500 micrometers), applying by physically coating a resin layer on at least one surface of the glass layer, joining another layer (e.g. thermoplastic, thermosetting, metal, etc.) to the glass layer through the resin layer by pressing in heated rollers to form a multilayer having a glass layer acting as an inside or outside reinforcing layer, and forming the multi-layer into the multilayer board of a specific type in a roll-to-roll process (Column 3, lines 3-10, 26-28, and 45-65 and Column 4, line 20 and Column 5, lines 45-53 and Column 6, lines 7-26 and Column 10, lines 63-67 and Column 11, lines 1-2).

Response to Arguments

8. Applicant's arguments with respect to claims 12-43 have been considered but are moot in view of the new ground(s) of rejection. The 35 USC 102 rejection over Verlinden et al. is withdrawn as Verlinden et al. do not specifically teach forming a pc (i.e. printed circuit) board. Applicants argue the references do not disclose a rigid pc board. The claims are not commensurate in scope with this argument as the claims do not require the pc board is rigid. Applicants further argue the references do not teach a pc board comprising at least one layer whose thermal expansion properties correspond approximately to the thermal expansion properties of the electronic devices. The claims do not require assembling electronic devices on the multilayer pc board. This limitation in the preamble relates to the intended use which is given little patentable weight as described above in the rejection. Applicants further argue the references do not teach processing the glass foil in a roll-to-roll process and/or thermally moulded. This amendment to the claims to specifically require this limitation is addressed above.

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Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

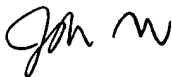
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

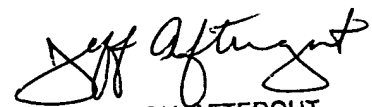
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John L. Goff



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